

2017 SPRING POPULATION SURVEY OF GREATER SNOW GEESSE IN SOUTHERN QUÉBEC

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Since 1965, the Canadian Wildlife Service has conducted an annual aerial photographic survey on greater snow geese during their spring migration in southern Québec (including eastern Ontario and northern New Brunswick). The best conditions for the survey are a warm and sunny day that follows a period with no precipitation because most of the birds feed early in the morning and return to known roost sites by mid-day. In 2017, the best survey conditions occurred on 4 May. We used five aircraft simultaneously and covered a large territory extending from Lac Champlain, QC in the south to Lac St-Jean, QC, in the north and from eastern Ontario in the west to Baie-des-Chaleurs, NB in the east.

The preliminary population estimate for spring 2017 was $747,000 \pm 73,000$ ($\pm 95\%$ CI; Figure 1 and Table 1) which falls within the upper bounds of the population objective. Our current estimate is about 20% lower than the 2016 estimate ($915,000 \pm 103,000$), although there was some overlap between the confidence intervals for 2016 and 2017. If real, we feel there are several possible explanations for the decline. First, productivity has been below average for the last five years (see Table 1) which may have affected recruitment. Second, harvest in the US has been variable, but generally increasing, since the implementation of the Conservation Order in 2009. If the US harvest for 2016/17 was high, it may have resulted in fewer birds in the spring flight. The third possibility is that some segment of population was missed during the 2017 survey. In April and May 2017 there was extensive flooding throughout the survey region. This may have created many new roost sites and it is possible that some of these roosts were missed. We will provide more detailed analyses after the 2016/17 harvest data is available for the USA.

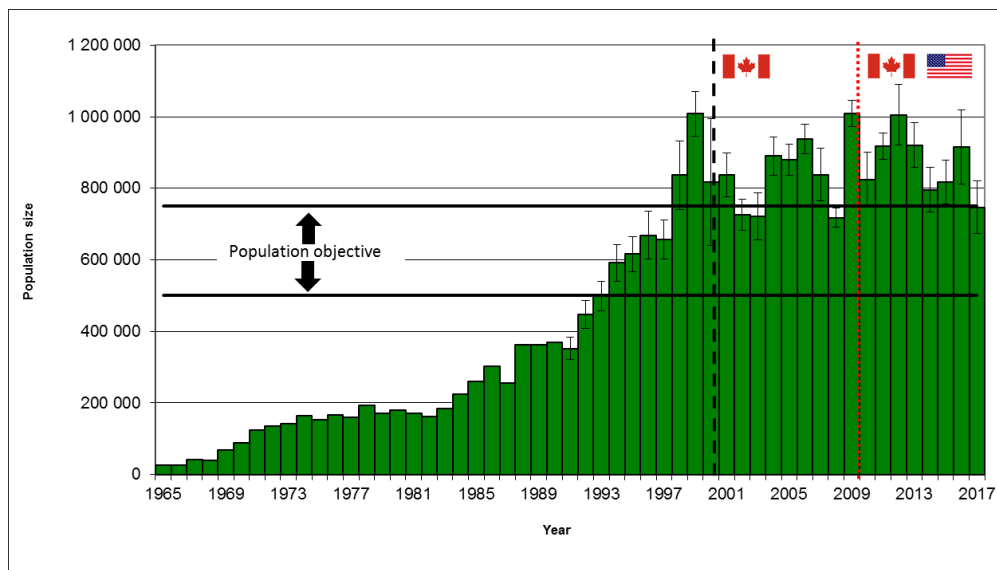


Figure 1. Estimated population size of the Greater Snow Goose according to the Canadian Wildlife Service spring survey, 1965-2017.

The black dotted line indicates the year when the special conservation measures were implemented in Québec (1999). The red dotted line indicates the year when The Conservation Order was implemented in the United States (2009).

Table 1: Greater Snow Goose population and productivity estimates from southern Québec, 1965-2017.

Year	Population estimates ¹	Young in fall flight ²		Brood size ³ in fall	
		Percentage	no. geese	mean	no. broods
1965	25,400				
1966	25,400				
1967	40,900				
1968	38,900				
1969	68,800				
1970	89,600				
1971	123,300				
1972	134,800				
1973	143,000	40.6	800	2.94	49
1974	165,000	6.4	7,282	2.19	119
1975	153,800	31.2	17,579	2.71	1,294
1976	165,600	12.6	20,847	2.46	419
1977	160,000	23.9	10,297	2.28	396
1978	192,600	17.9	9,679	2.34	309
1979	170,100	28.2	20,849	2.65	1,226
1980	180,000	35.3	12,120	2.76	651
1981	170,800	16.3	10,683	2.30	229
1982	163,000	25.1	9,577	2.48	661
1983	185,000	47.4	12,353	2.86	1,246
1984	225,400	30.4	39,781	2.63	2,434
1985	260,000	25.8	33,700	2.49	1,682
1986	303,500	2.3	22,998	1.89	74
1987	255,000	40.2	33,278	2.77	1,882
1988	363,800 ⁴	33.1	40,246	2.76	2,444
1989	363,200	31.1	29,191	2.59	2,014
1990	368,300	23.6	20,313	2.54	830
1991	352,600	38.3	15,102	2.69	1,247
1992	448,100	5.4	32,252	2.06	404
1993	498,400	47.8	24,163	2.75	2,743
1994	591,400	9.2	16,444	2.44	242
1995	616,600	16.6	19,519	2.47	665
1996	669,100	25.1	22,595	2.34	1,247
1997	657,500	36.8	17,586	2.69	1,222
1998	836,600 ⁵	33.1	17,982	2.52	1,440
1999	1,008,000 ⁵	2.1	20,394	2.09	91
2000	816,500 ⁵	22.7	20,468	2.54	1,302
2001	837,400	27.5	22,106	2.36	1,072
2002	725,000 ⁶	6.0	18,930	1.91	274
2003	721,000 ⁶	27.0	15,900	2.36	1,092
2004	890,000 ⁶	17.8	26,206	2.44	1,031
2005	880,000 ⁶	20.7	29,022	2.38	1,470
2006	938,000 ⁶	19.7	23,378	2.34	1,143
2007	838,000 ⁶	20.6	25,463	2.28	1,371
2008	718,000 ⁶	40.0	32,020	2.62	3,187
2009	1,009,000 ⁶	10.6	28,969	2.08	753
2010	824,000 ⁶	19.6	27 030	2.25	1,533
2011	917,000 ⁶	28.0	31,719	2.42	2,291
2012	1,005,000 ⁶	12.0	25,822	2.19	834
2013	921,000 ⁶	8.0	30,735	1.86	693
2014	796,000 ⁶	21.4	28,233	2.15	1,893
2015	818,000 ⁶	14.6	25,677	2.16	253
2016	915,000 ⁶	16.8	28,078	2.14	1,245
2017	747,000⁶	-	-	-	-

¹ from aerial photo counts² from visual ground counts³ broods accompanied by 2 parents⁴ no spring survey conducted - the value provided was derived from population model (Gauvin & Reed, CWS Occas. Pap. No. 64. 1987)⁵ estimates for 1998 and 2000 have been corrected to account for flocks not observed during the survey, using data from a telemetry study. The 1999 value is the mean of the correction factors used in 1998 and 2000.⁶ estimates calculated with the revised sampling methodology.